

FIG. 1

gattctcagt agagacgttt gactgtccca acccgatgct gccttccac ataaatgaga 60

tttttttctg ccaggcaac atg gtt tta ccc tca tat tca aaa aaa ccc tta 112
Met Val Leu Pro Ser Tyr Ser Lys Lys Pro Leu
1 5 10

atc tct aat gtg gag cag ctg atc ctg ggg atc ccg ggc cag aat cgc 160
Ile Ser Asn Val Glu Gln Leu Ile Leu Gly Ile Pro Gly Gln Asn Arg
15 20 25

cgg gag ata ggc cat ggc cag gat atc ttt cca gca gag aag ctc tgc 208
Arg Glu Ile Gly His Gly Gln Asp Ile Phe Pro Ala Glu Lys Leu Cys
30 35 40

cat ctg cag gat cgc aag gtg aac ctt cac aga gct gcc tgg ggc gag 256
His Leu Gln Asp Arg Lys Val Asn Leu His Arg Ala Ala Trp Gly Glu
45 50 55

tgt att gtt gca ccc aag act ctc agc ttc tct tac tgt cag ggg acc 304
Cys Ile Val Ala Pro Lys Thr Leu Ser Phe Ser Tyr Cys Gln Gly Thr
60 65 70 75

tgc ccg gcc ctc aac agt gag ctc cgt cat tcc agc ttt gag tgc tat 352
Cys Pro Ala Leu Asn Ser Glu Leu Arg His Ser Ser Phe Glu Cys Tyr
80 85 90

aag agg gca gta cct acc tgt ccc tgg ctc ttc cag acc tgc cgt ccc 400
Lys Arg Ala Val Pro Thr Cys Pro Trp Leu Phe Gln Thr Cys Arg Pro
95 100 105

acc atg gtc aga ctc ttc tcc ctg atg gtc cag gat gac gaa cac aag 448
Thr Met Val Arg Leu Phe Ser Leu Met Val Gln Asp Asp Glu His Lys
110 115 120

atg agt gtg cac tat gtg aac act tcc ttg gtg gag aag tgt ggc tgc 496
Met Ser Val His Tyr Val Asn Thr Ser Leu Val Glu Lys Cys Gly Cys
125 130 135

tct tga gataccccaa agcctcctac tggcctcagg gccacctaag tctcaggact 552
Ser
140

ttagtagggg gtgggattac ttttcatagc aagtagagct ctttgaaggg aggtgggatt 612

tggtttgttt ctcaaagcac agcaagaagg ttggcattat ggcagtaaca aat 665

[illegible]

SECRET

FIG. 3

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201 FLEILVKEDRD SGVNFQPEDTCARLRCSLHASLLVVTLNPDQC...HPSR 247
      :      :.   ... | :|      | .
1 .....MVLPSYSKKPLIS.NVEQLILGIPGQ 25

248 KRRAAIPVPKL.SCKNLCHRHQLFINFRDLGWHKWIIAPKGFMAN YCHGE 296
    ||      :   . |||   :|      | . |:|||   .|||
26 NRREIGHGQDIFPAEKLCHLQDRKVN LHRAAWGECIVAPKTL SFSYCQGT 75

297 CPFSLTISLNSSNYAFMQALMHA VDPEIPQ..AVCIPTKLSPISM LYQDN 344
    || .|   |   |.:   :   || |   |   ||| .   |.: ||.
76 CP.ALNSELRHSSF...ECYKRAV.PTCPWLFQTCRPTMVRLFSLMVQDD 120

345 NDNVILRHYEDMVVDECGCG 364
      . . :   .|: .|||
121 EHKMSVHYVNTSLVEKCGCS 140

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Percent Similarity: 36.567 Percent Identity: 26.866

FIG. 4

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151 QEPHVWGQTTPKPGKMFVLRSPWPQGAVHFNLLDVAKDWNDNPRKNFGL 200
      : |
1  .....MRFFSARQHGF 11
201 FLEILVKEDRDSGVNFQPEDTCARLRCSLHASLLVVTLN...PDQCH... 244
      | . . | . | . || ||| . | |
12 TLIFKKTKIPATDVADASLNECSSTERKQDVLLFVTLSHTQPPLFHLPY 61
245 ...P..SRKRRAAIPVPK.....LSCKNLCHRHQLFINFRDLG 277
      | | . : : | . ||| : |
62 VQKPLISNVEQLILGIPGQNRREIGHGQDIFPAEKLCHLQDRKVNLRHAA 111
278 WHKWIIAPKGFMANYCHGECPFSLTISLNSSNYAFMQALMHAVDPEIPQ. 326
      | . | : ||| . || | || . | | | . : | | | |
112 WGECIVAPKTLFSYSYCQGTCP.ALNSELRHSSF...ECYKRAV.PTCPWL 156
327 .AVCIPTKLSPISMPLYQDNNDNVILRHYEDMVVDECGCG 364
      | || . | : | | . . . : . | : |||
157 FQTCRPTMVRLFSLMVQDDEHKMSVHYVNTSLVEKCGCS 195

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Percent Similarity: 32.941 Percent Identity: 26.471

FIG. 5A

tgagaaacac aatctgtatt atcacttctt gcacctccat tctgtaaaca ggagttggta 60
 ttgaagttgt tctgggagtg agagtttctc tcaacttgaat ttaatttctc ttgaatgcgt 120
 gatcagctac aagctgtggg ggggttagaat agggcctaca gctgggcacg tggatattta 180
 aagacagcga aggggaagcc ccgcttctga gagcagggtat gttggagggg ggctgtggga 240
 gaagtggcag ctcttggtc attcctgggc tcttggtctt gggctcttgg tgcattgtgt 300
 tgagctcagt agagacgttt gactgtccca acccgatgct gccttcccac ataaatgaga 360
 tttttttctg ccaggcaac atg gtt tta ccc tca tat tca aaa gtaagtagct 413
 Met Val Leu Pro Ser Tyr Ser Lys 8
 ggagcgctgg tctttgccag ggaaggagtg atccagaagc tgcctggcag cattttgtgg 473
 ggctggtcag ggaatggggg gtaaatgaca acagatatta agggctcttg tgagtagagc 533
 aaggagttgg gtacagaata ttcttcagct ggtctagcag aaatggaatc tgcttcctgg 593
 tttcagctct gcaggcttgg tatgtaggat gtctttaagc tttatggctg atgccctaaa 653
 gttctgtgtg taaggatgct ctaaagtgtg aagtacacag ctgctgggct gggcaactat 713
 agtgttttgg gagataaaca gggcaagtgg cttgtcttag gtcattgtga ctggaatgat 773
 tttcagtact agggcaatca ttctgactta attccagggg tagggtagtg ggagttgagg 833
 aacctcagtc catccctggc tgctgtggac taagcactga ctttgacaag ctgagactgc 893
 taagtctttg tcctgtcctg cccggctggg tagtggggag taagaagctg aaaggaggt 953
 gggactttcc acgatagtgg cctcctggag cttccactct tctttcccta caggctcata 1013
 gttctacac agctactggc ttctctgttt tgaggcagtt tccttcttgg gggtttcctt 1073
 gataaagtta tgggcttggg tgccattgt ccccatgcc actgagcttg ttctagagtt 1133
 cgaggaccat agaagggggc tccaaagatt ccttctggga tctttcccca ttatcttttc 1193
 atcctaccag tcagaggag ggtcattatt ggatatctac tgtttactca cgtattggat 1253
 ggaggtggtg cccaccctct tggcagagac aaagattcca gccactgatg tcgctgatgc 1313
 cagcctgaat gaatgttcca gtaccgaaag gaaacaagac gtagtggtgc tgttcgtgac 1373
 cttgtcccac acacagccac ctctgtttca cctgccttat gtccag aaa ccc tta 1428
 Lys,Pro Leu 11
 atc tct aat gtg gag cag ctg atc ctg ggg atc ccg ggc cag aat cgc 1476
 Ile Ser Asn Val Glu Gln Leu Ile Leu Gly Ile Pro Gly Gln Asn Arg 27

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FIG. 5B

cgg gag ata ggc cat ggc cag gat atc ttt cca gca gag aag ctc tgc	1524
Arg Glu Ile Gly His Gly Gln Asp Ile Phe Pro Ala Glu Lys Leu Cys	43
cat ctg cag gat cgc aag gtg aac ctt cac aga gct gcc tgg ggc gag	1572
His Leu Gln Asp Arg Lys Val Asn Leu His Arg Ala Ala Trp Gly Glu	59
tgt att gtt gca ccc aag act ctc agc ttc tct tac tgt cag ggg acc	1620
Cys Ile Val Ala Pro Lys Thr Leu Ser Phe Ser Tyr Cys Gln Gly Thr	75
tgc ccg gcc ctc aac agt gag ctc cgt cat tcc agc ttt gag tgc tat	1668
Cys Pro Ala Leu Asn Ser Glu Leu Arg His Ser Ser Phe Glu Cys Tyr	91
aag gtaagacatg gagcctcgtt ctttctcttc tggggtcata ttgggatagc	1721
Lys	92
actaagtgct caactctcta ggcctggctc cttttgagtc aaggaagcca ttgaagtgg	1781
taattatgta atctagcact gatgcagtgt gtagcatctt ccccgccctg tgaccttatt	1841
ccttatcttt attcataaga aacatcagct tcctaaagat tgttctgaaa cagccctgat	1901
ccagcagctt ctccccaggc cctccttctc ccttcccatg tatccctgac aagtctactg	1961
atgcccttag atatgaggct gtggctatga ggcactcacc attctgcat ttgtttctgc	2021
ag agg gca gta cct acc tgt ccc tgg ctc ttc cag acc tgc cgt ccc	2068
Arg Ala Val Pro Thr Cys Pro Trp Leu Phe Gln Thr Cys Arg Pro	107
acc atg gtc aga ctc ttc tcc ctg atg gtc cag gat gac gaa cac aag	2116
Thr Met Val Arg Leu Phe Ser Leu Met Val Gln Asp Asp Glu His Lys	123
atg agt gtg cac tat gtg aac act tcc ttg gtg gag aag tgt ggc tgc	2164
Met Ser Val His Tyr Val Asn Thr Ser Leu Val Glu Lys Cys Gly Cys	139
tct tga gatacccaaa agcctcctac tggcctcagg gccacctaag tctcaggact	2220
Ser *	140
ttagtagggg gtgggattac ttttcatagc aagtagagct ctttgaaggg aggtgggatt	2280
tggtttgttt ctcaaagcac agcaagaagg ttggcattat ggcagtaacc cctcatagat	2340
gcttctcttt gatgtggcag gggcccccta gtgctgttct cagtactcc tactactggg	2400
aagctgggcc cattgagatg tctgactatc gctgtcctag attgtgagtg ggctgggctt	2460
agtgccacct ctgggatcat ttaggtgggg aaagaggaac tggaattgga cgcattgcag	2520
ctcttggggg aggggtaaaa ttgttaccag tgttaagctg gctttggact ctttctgagc	2580
cattcagctg ctatcatcct tctctgtacc attggcctgg ggctgggtcca gaactgacct	2640
cagcatgtac attcctcctc acctaacact cctggcctct ttagagggag tgaagactct	2700

FIG. 5C

gtggaagaaa gcattctgtc atgggctagt catgggtaaa gggccccaag gccttcacaa 2760
cctgggtgtca gatgggagcc tgagagtaga ggatgttgct tgactgacag agggggcctc 2820
tggcctcatg gaaagtttgt ctactatca tttaaggaac ttgatattag ctttttcact 2880
atctttaata aaactatagg accattgttg tgggtctctt atgttggata tctattactt 2940

gtggaagaaa gcattctgtc atgggctagt catgggtaaa gggccccaag gccttcacaa 2760
cctgggtgtca gatgggagcc tgagagtaga ggatgttgct tgactgacag agggggcctc 2820
tggcctcatg gaaagtttgt ctactatca tttaaggaac ttgatattag ctttttcact 2880
atctttaata aaactatagg accattgttg tgggtctctt atgttggata tctattactt 2940

FIG. 6B

cct ctg ttt cac ctg cct tat gtc cag aaa ccc tta atc tct aat gtg	1440
Pro Leu Phe His Leu Pro Tyr Val Gln Lys Pro Leu Ile Ser Asn Val	70
gag cag ctg atc ctg ggg atc ccg ggc cag aat cgc cgg gag ata ggc	1488
Glu Gln Leu Ile Leu Gly Ile Pro Gly Gln Asn Arg Arg Glu Ile Gly	86
cat ggc cag gat atc ttt cca gca gag aag ctc tgc cat ctg cag gat	1536
His Gly Gln Asp Ile Phe Pro Ala Glu Lys Leu Cys His Leu Gln Asp	102
cgc aag gtg aac ctt cac aga gct gcc tgg ggc gag tgt att gtt gca	1584
Arg Lys Val Asn Leu His Arg Ala Ala Trp Gly Glu Cys Ile Val Ala	118
ccc aag act ctc agc ttc tct tac tgt cag ggg acc tgc ccg gcc ctc	1632
Pro Lys Thr Leu Ser Phe Ser Tyr Cys Gln Gly Thr Cys Pro Ala Leu	134
aac agt gag ctc cgt cat tcc agc ttt gag tgc tat aag gtaagacatg	1681
Asn Ser Glu Leu Arg His Ser Ser Phe Glu Cys Tyr Lys	147
gagcctcggt ctttctcttc tggggtcata ttgggatagc actaagtgt caactctcta	1741
ggcctggctc cttttgagtc aaggaagcca ttgaagttgg taattatgta atctagcact	1801
gatgcagtgt gtagcatctt ccccgccctg tgaccttacc ccttatcttt attcataaga	1861
aacatcagct tcctaaagat tgttctgaaa cagccctgat ccagcagctt ctccccaggc	1921
cctccttctc ccttcccatg tatccctgac aagtctactg atgcccttag atatgaggct	1981
gtggctatga ggcactcacc attctgccat ttgtttctgc ag agg gca gta cct	2035
Arg Ala Val Pro	151
acc tgt ccc tgg ctc ttc cag acc tgc cgt ccc acc atg gtc aga ctc	2083
Thr Cys Pro Trp Leu Phe Gln Thr Cys Arg Pro Thr Met Val Arg Leu	167
ttc tcc ctg atg gtc cag gat gac gaa cac aag atg agt gtg cac tat	2131
Phe Ser Leu Met Val Gln Asp Asp Glu His Lys Met Ser Val His Tyr	183
gtg aac act tcc ttg gtg gag aag tgt ggc tgc tct tga gataccccaa	2180
Val Asn Thr Ser Leu Val Glu Lys Cys Gly Cys Ser *	195
agcctcctac tggcctcagg gccacctaag tctcaggact ttagtagggg gtgggattac	2240
ttttcatagc aagtagagct ctttgaaggg aggtgggatt tggtttgttt ctcaaagcac	2300
agcaagaagg ttggcattat ggcagtaacc cctcatagat gcttctcttt gatgtggcag	2360
gggcccccta gtgctgttct cagtcactcc tactactggg aagctgggcc cattgagatg	2420
tctgactatc gctgtcctag attgtgagtg ggctgggctt agtgccacct ctgggatcat	2480
ttaggtgggg aaagaggaac tggaattgga cgcatgtcag ctcttggggg aggggtaaaa	2540
ttgttaccag tgtaagctg gctttggact ctttctgagc cattcagctg ctatcatcct	2600

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FIG. 6C

tctctgtacc attggcctgg ggctggtcca gaactgacct cagcatgtac attcctcctc 2660
acctaacact cctggcctct ttagagggag tgaagactct gtggaagaaa gcattctgtc 2720
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tgagagtaga ggatgttgct tgactgacag agggggcctc tggcctcatg gaaagtttgt 2840
ctcactatca tttaaggaac ttgatattag ctttttcact atctttaata aaactatagg 2900
accattgttg tgggtctctt atgttgata tctattactt 2940

FIG. 6C